

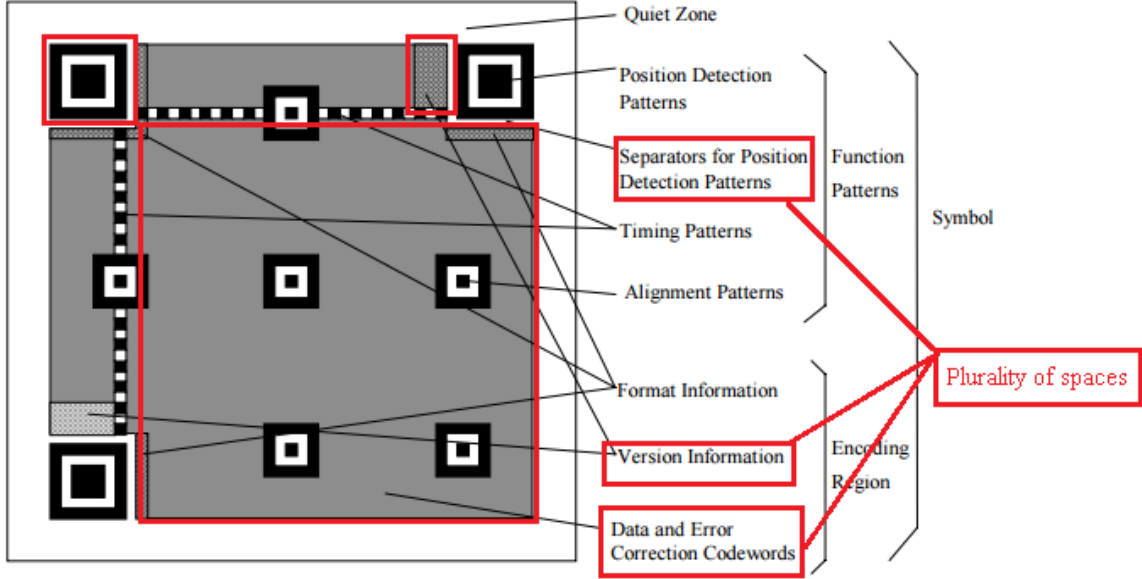




## EXHIBIT E

|  | US Patent No: 6,098,882  |
|--|--|
| Claim 1  | Accused Product: JPMorgan Chase & Co. QR Codes   |
| <p>1. A method of encoding data on a substrate as digital data comprising:</p> | <p>JPMorgan Chase &amp; Co. infringes the current patent by their usage and publication of QR Codes in relation to their offered products and services. As shown below, JPMorgan Chase &amp; Co. employs QR codes.</p>  <p>As shown below, QR code provides a method of encoding data on a substrate as digital data.</p>  <p><b>QR-Code      Scan      Decode      Action</b></p> <p><a href="http://www.qreative-media.de/images/qr-codes-action.jpg">http://www.qreative-media.de/images/qr-codes-action.jpg</a></p> |

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| Claim 1 | Accused Product: JPMorgan Chase & Co. QR Codes   |
|         | <p>As shown below, QR codes are composed of a pattern comprising a plurality of spaces (e.g., blocks represented by rectangular areas in a defined space, such as block for data and error correction code, version information, etc.), and at least some of spaces which contains at least one bit of said digital data (e.g., information is encoded in various spots in the QR code's data and error correction space), and wherein at least one logical state is expressed by the presence of a spot in that space (e.g. information encoded in dark spots located in the QR code's data and error correction space) and at least one other logical state is expressed by the absence of a spot (e.g., information encoded in dark spots located in the QR code's data and error correction space).</p>  <p>The diagram illustrates the structure of a QR code. It shows a Quiet Zone at the top, followed by Position Detection Patterns (three large squares). Below these are Separators for Position Detection Patterns (dashed lines), Timing Patterns (a row of small squares), Alignment Patterns (three small squares), Format Information (a small square), Version Information (a small square), and Data and Error Correction Codewords (a large rectangular area). The entire structure is labeled as a Symbol. A red box labeled 'Plurality of spaces' points to the Data and Error Correction Codewords area.</p> |

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|         | <div>  </div> <div> <p>Dark spot to express a logical state</p> </div> <div>  </div> <div> <p>Light spot to express a logical state</p> </div> <p>b) Representation of data:</p> <p><u>A dark module is a binary one and a light module is a binary zero.</u></p> <p><b>7.3 Symbol structure</b></p> <div style="border: 2px solid red; padding: 5px;"> <p>Each QR Code symbol shall be constructed of nominally square modules set out in a regular square array and shall consist of a encoding region and function patterns, namely finder, separator, timing patterns, and alignment patterns. Function patterns shall not be used for the encodation of data. The symbol shall be surrounded on all four sides by a quiet zone border. Figure 2 illustrates the structure of a Version 7 QR Code symbol.</p> </div> |

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| formatting the data into a series of digital data values wherein said series of digital data values are formatted into a pattern comprising a plurality of spaces at least some of which have dimensions M pixels by N pixels wherein at least one bit in said series of digital data values are represented in each of said plurality of spaces | As shown below, when QR code is generated, the data is formatted into a series of digital data values (e.g., given data is converted into binary digital data sequence) wherein said series of digital data values are formatted into a pattern (e.g., the digital data is encoded into QR code pattern) comprising a plurality of spaces (e.g., data and error correction block, version information block, etc.) at least some of which have dimensions M pixels by N pixels wherein at least one bit in said series of digital data values are represented in each of said plurality of spaces (e.g., data and error correction block contains digital data values). |

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|         | <p><b>8 Requirements</b></p> <p><b>8.1 Encode procedure overview</b></p> <p>This section provides an overview of the steps required to convert input data to a QR Code symbol.</p> <div style="border: 2px solid red; padding: 5px;"> <p><i>Step 1 Data analysis</i></p> <p>Analyze the input data stream to identify the variety of different characters to be encoded. QR Code supports the Extended Channel Interpretation feature, enabling data differing from the default character set to be encoded. QR Code includes several modes (see 8.3) to allow different sub-sets of characters to be converted into symbol characters in efficient ways. Switch between modes as necessary in order to achieve the most efficient conversion of data into a binary string. Select the required Error Detection and Correction Level. If the user has not specified the symbol version to be used, select the smallest version that will accommodate the data. A complete list of symbol versions and capacities is shown in Table 1.</p> <p><i>Step 2 Data encodation</i></p> <p>Convert the data characters into a bit stream in accordance with the rules for the mode in force, as defined in 8.4.1 to 8.4.5, inserting Mode Indicators as necessary to change modes at the beginning of each new mode segment, and a Terminator at the end of the data sequence. Split the resulting bit stream into 8-bit codewords. Add Pad Characters as necessary to fill the number of data codewords required for the version.</p> </div> <p><i>Step 3 Error correction coding</i></p> <p>Divide the codeword sequence into the required number of blocks (as defined in Tables 13 to 22) to enable the error correction algorithms to be processed. Generate the error correction codewords for each block, appending the error correction codewords to the end of the data codeword sequence.</p> <div style="border: 2px solid red; padding: 5px;"> <p><i>Step 4 Structure final message</i></p> <p>Interleave the data and error correction codewords from each block as described in 8.6 (step 3) and add remainder bits as necessary.</p> <p><i>Step 5 Module placement in matrix</i></p> <p>Place the codeword modules in the matrix together with the Finder Pattern, Separators, Timing Pattern, and Alignment Patterns.</p> </div> <p><i>Step 6 Masking</i></p> <p>Apply the masking patterns in turn to the encoding region of the symbol. Evaluate the results and select the pattern which optimizes the dark/light module balance and minimizes the occurrence of undesirable patterns.</p> <p><i>Step 7 Format and Version Information</i></p> <p>Generate the Format and (where applicable) Version Information and complete the symbol.</p> <p style="text-align: center;">5</p> <p><u>Example (for Version 1-H symbol)</u></p> <p>Input data: <span style="float: right;"><b>AC-42</b></span></p> |

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| <p>where at least one logical state is expressed by the presence in the space of a spot of a spot size with dimensions X pixels by Y pixels and at least one other logical state is expressed by the absence of a spot with dimensions X pixels by Y pixels from the space and where at least one of dimensions M, N, X, and Y is capable of differing from at least one other of the dimensions M, N, X, and Y; and</p> | <p>As shown below, where at least one logical state (e.g., binary data value “1”) is expressed by the presence in the space of a spot (e.g., A dark spot in the data and error correction space) of a spot size with dimensions X pixels by Y pixels and at least one other logical state (e.g., binary data value “0”) is expressed by the absence of a spot (e.g., A light spot, absence of a dark spot, in the data and error correction space) with dimensions X pixels by Y pixels from the space and where at least one of dimensions M, N, X, and Y is capable of differing from at least one other of the dimensions M, N, X, and Y (e.g., the dimensions of data and error correction block differ from the dimensions of a dark/light spot).</p> |

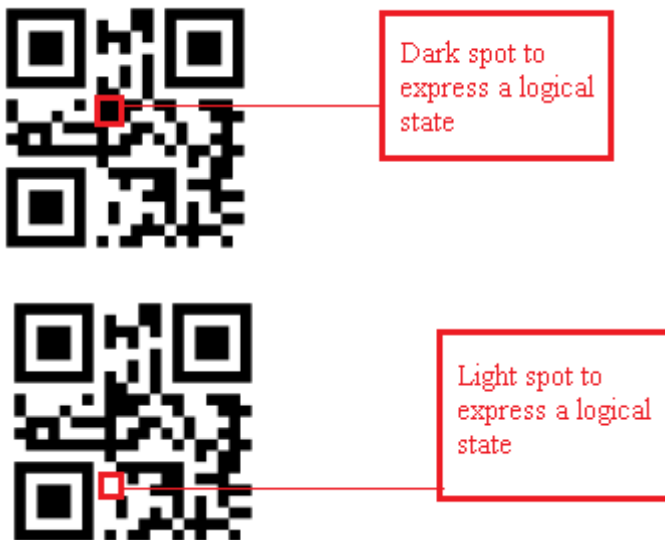
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|                         | <p><b>4 Terms and definitions</b></p> <p>For the purposes of this International Standard, the terms and definitions given in EN 1556 and the following apply.</p> <p><b>4.1</b><br/><b>Alignment Pattern</b><br/>fixed reference pattern in defined positions in a matrix symbology, which enables the decode software to re-synchronise the coordinate mapping of the image modules in the event of moderate amounts of distortion of the image</p> <p><b>4.2</b><br/><b>Character Count Indicator</b><br/>bit sequence which defines the data string length in a mode</p> <p><b>4.3</b><br/><b>ECI designator</b><br/>six-digit number identifying a specific ECI assignment</p> <p><b>4.4</b><br/><b>encoding region</b><br/>region of the symbol not occupied by function patterns and available for encodation of data and error correction codewords</p> <p><b>4.5</b><br/><b>Extended Channel Interpretation (ECI)</b><br/>protocol used in some symbologies that allows the output data stream to have interpretations different from that of the default character set</p> <p><b>4.6</b><br/><b>Extension Pattern</b><br/>in Model 1 symbols, a function pattern which does not encode data</p> <p><b>4.7</b><br/><b>Format Information</b><br/>function pattern containing information on the error correction level applied to the symbol and on the masking pattern used, essential to enable the remainder of the encoding region to be decoded</p> <p><b>4.8</b><br/><b>function pattern</b><br/>overhead component of the symbol required for location of the symbol or identification of its characteristics to assist in decoding</p> <p><b>4.9</b><br/><b>Mask Pattern Reference</b><br/>three-bit identifier of the masking patterns applied to the symbol</p> <p><b>4.10</b><br/><b>masking</b><br/>process of XORing the bit pattern in the encoding region with a masking pattern to provide a symbol with more evenly balanced numbers of dark and light modules and reduced occurrence of patterns which would interfere with fast processing of the image</p> <p><b>4.11</b><br/><b>mode</b><br/>method of representing a defined character set as a bit string</p> |

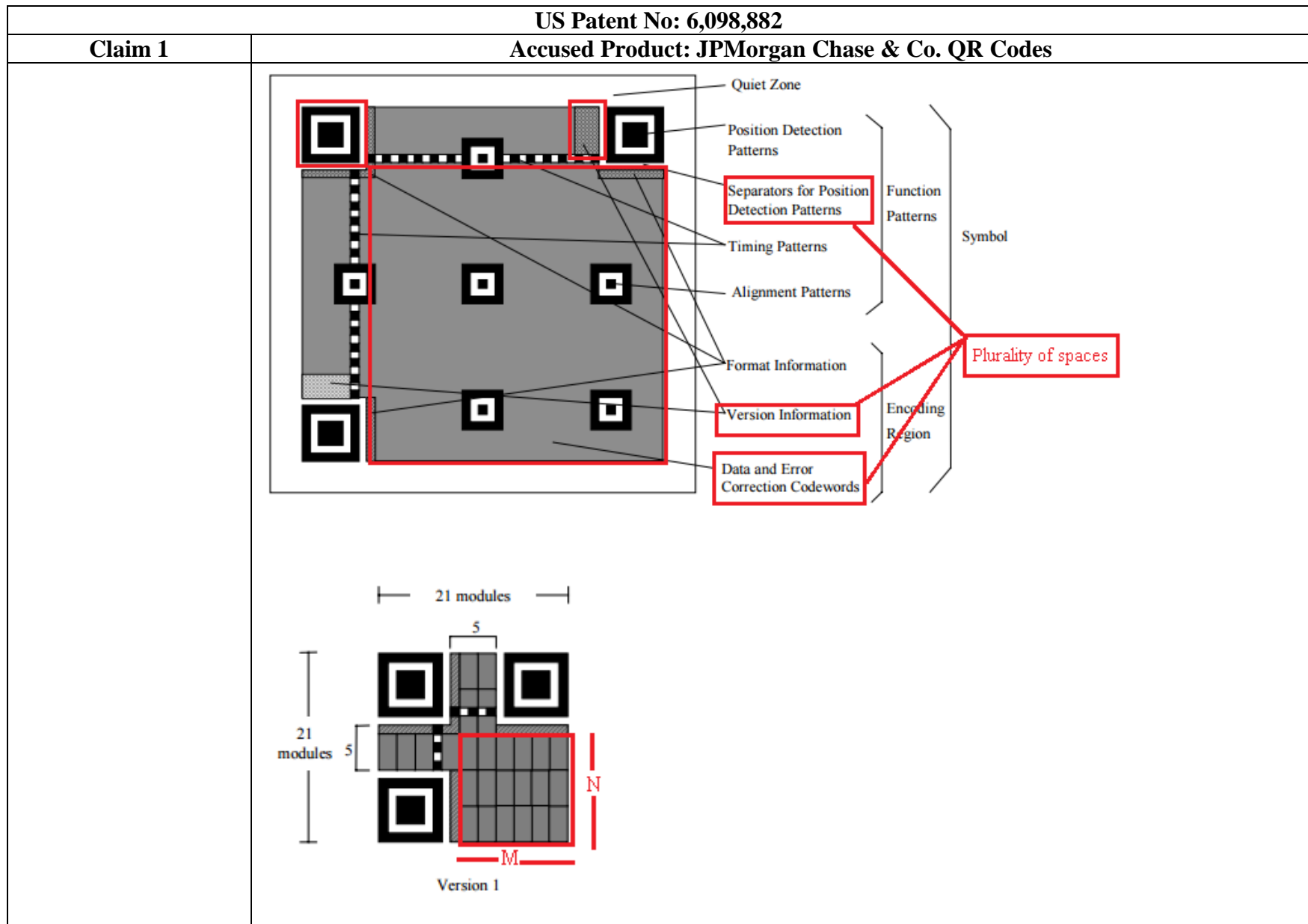
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|                         | <p><b>4.12</b><br/><b>Mode Indicator</b><br/>four-bit identifier indicating in which mode the next data sequence is encoded</p> <p><b>4.13</b><br/><b>Padding Bit</b><br/>0 bit, not representing data, used to fill empty positions of the final codeword after the Terminator in a data bit string</p> <p><b>4.14</b><br/><b>Position Detection Pattern</b><br/>one of three identical components of the Finder Pattern</p> <p><b>4.15</b><br/><b>Remainder Bit</b><br/>0 bit, not representing data, used to fill empty positions of the symbol encoding region after the final symbol character, where the encoding region does not divide exactly into eight-bit symbol characters</p> <p><b>4.16</b><br/><b>Remainder Codeword</b><br/>Pad Codeword used to fill empty codeword positions to complete the symbol if the total number of data and error correction codewords does not exactly fill its nominal capacity</p> <p>NOTE     The Remainder codewords come after the error correction codewords.</p> <p><b>4.17</b><br/><b>segment</b><br/>sequence of data encoded according to the rules of one EC1 or encodation mode</p> <p><b>4.18</b><br/><b>Separator</b><br/>function pattern of all light modules, one module wide, separating the Position Detection Patterns from the rest of the symbol</p> <p><b>4.19</b><br/><b>Terminator</b><br/>bit pattern 0000 used to end the bit string representing data</p> <p><b>4.20</b><br/><b>Timing Pattern</b><br/>alternating sequence of dark and light modules enabling module coordinates in the symbol to be determined</p> <p><b>4.21</b><br/><b>Version</b><br/>size of the symbol represented in terms of its position in the sequence of permissible sizes from <math>21 \times 21</math> modules (Version 1) to <math>177 \times 177</math> (Version 40) modules</p> <p>NOTE     May also indicate the error correction level applied to the symbol.</p> <p><b>4.22</b><br/><b>Version Information</b><br/>in Model 2 symbols, a function pattern containing information on the symbol version together with error correction bits for this data</p> |



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|                         | <p>b) Representation of data:</p> <p><u>A dark module is a binary one and a light module is a binary zero.</u></p> <div>  <p>Dark spot to express a logical state</p> <p>Light spot to express a logical state</p> </div> |

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| outputting said pattern onto at least one substrate, such that the data is represented in digitized form on said at least one substrate. | <p>As shown below, outputting said pattern (e.g., QR code symbol) onto at least one substrate such that the data is represented in digitized form on said at least one substrate.</p>  |